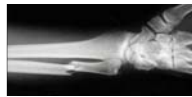


# BIOMEDICAL AND PSYCHOSOCIAL FACTORS ASSOCIATED WITH SEVERE ACUTE MUSCULOSKELETAL PAIN

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Fracture



Luxation



Distortion



Contusion

## BACKGROUND AND AIM

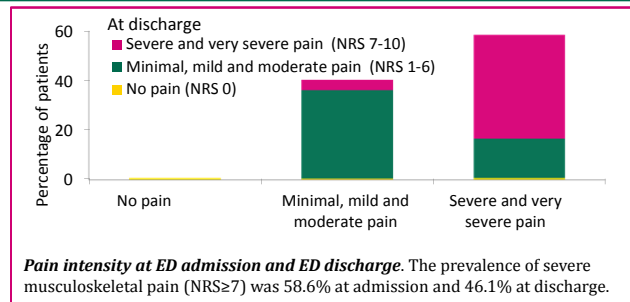
- Whereas acute musculoskeletal pain is a common presentation in emergency care, it often remains undertreated.
- Pain is known as a multi-dimensional experience with biomedical and psychosocial components
- Our goal is to identify high-risk patients for severe pain who may benefit most from early pain management and additional pain relief.

## STUDY DESIGN AND POPULATION

- The prospective cohort study PROTACT includes 408 adult patients who were admitted to the Emergency Department (ED) with injury due to blunt trauma to the extremities of the musculoskeletal system.
- Characteristics of patients, including psychosocial-, biomedical and health related factors, and perception of pain were collected using questionnaires and hospital registration.
- Odds ratios (OR) with 95% Confidence intervals were calculated and adjusted (OR adj) for other factors using unconditional logistic regression

## RESULTS

Characteristics of 408 acute musculoskeletal trauma patients		
	N (%)	Mean (SD)
Demographic characteristics		
Age		45.2 (15.3)
Women	237 (58.1%)	
Pain characteristics		
Pain as main reason	289 (70.8%)	
ED visit within 2 hours after onset of pain	193 (47.3%)	
ED visit within 24 hours after onset of pain	344 (84.3%)	
Pain (score) at arrival ED ( patient)	99%	6.4 (2.4)
Pain (score) at discharge ED (patient)	98%	5.7 (2.5)
Pain (score) according to MTS (nurse)	100%	3.9 (1.3)



Potential risk and protective factors associated with severe pain (NRS≥7)									
		Severe pain at admission				Severe pain at discharge			
		N	n	OR	(95% CI)	N	n	OR	(95% CI)
Age	18-39	148	79	1		148	64	1	
	40-49	75	41	1.05	(0.60-1.84)	75	37	1.28	(0.73-2.23)
	50-69	185	119	1.57*	(1.01-2.48)	185	87	1.17	(0.75-1.80)
Gender	Men	171	82	1		171	66	1	
	Women	237	157	2.13*	(1.42-3.19)	237	122	1.69*	(1.13-2.52)
Kinesiofobia	No	197	109	1		197	80	1	
	Yes	144	99	1.78*	(1.13-2.79)	144	80	1.83*	(1.18-2.82)
Anxiety	No	361	206	1		361	161	1	
	Yes	37	28	2.34*	(1.07-5.10)	37	23	2.04*	(1.02-4.09)
Depression	No	377	222	1		377	177	1	
	Yes	18	11	1.10	(0.42-2.89)	18	8	0.90	(0.35-2.34)
Pain catastrophizing	No	324	191	1		324	151	1	
	Yes	22	18	3.13*	(1.04-9.47)	22	16	3.06*	(1.17-8.01)
Education level	High	180	93	1		180	72	1	
	Low	216	136	1.48	(1.00-2.23)	216	110	1.56*	(1.04-2.32)
Smoking	No	330	186	1		330	143	1	
	Yes	65	48	2.19*	(1.21-3.96)	65	41	2.23*	(1.29-3.87)
Arrival by ambulance	No	360	203	1		360	163	1	
	Yes	43	33	2.55*	(1.22-5.34)	43	22	1.27	(0.67-2.38)
Income out of work	Low	105	66	1		105	55	1	
	Modal	61	36	0.85	(0.45-1.62)	61	28	0.77	(0.41-1.45)
	High	62	30	0.55	(0.24-1.05)	62	20	0.43*	(0.23-0.83)
	No work	128	80	0.99	(0.58-1.68)	128	61	0.83	(0.49-1.39)
Injury type	Fracture	296	170	1		296	128	1	
	Luxation	13	9	1.67	(0.50-5.54)	13	4	0.58	(0.18-1.94)
	Distortion	56	33	1.06	(0.60-1.90)	56	29	1.41	(0.80-2.50)
	Contusion	35	22	1.25	(0.61-2.59)	35	24	2.52*	(1.21-5.25)
	Muscle rupture	8	5	1.24	(0.29-5.27)	8	4	1.31	(0.32-5.54)

Independent predictors of severe pain at admission (n=339)			
		ORadj	(95% CI)
<b>Age#</b>		1.00	(0.99-1.01)
	Gender		
	Men	1	
	Women	2.46*	(1.54-3.92)
<b>Smoking</b>	No	1	
	Yes	2.32*	(1.19-4.53)
<b>Kinesiofobia</b>	No	1	
	Yes	1.66*	(1.04-2.67)
<b>Arrival by ambulance</b>	No	1	
	Yes	1.96	(0.89-4.45)

Independent predictors of severe pain at discharge (n=315)			
		ORadj	(95% CI)
<b>Age#</b>		1.00	(0.99-1.02)
	Pain catastrophizing#	1.04*	(1.00-1.07)
<b>Gender</b>	Men	1	
	Women	1.63*	(1.01-2.66)
<b>Smoking</b>	No	1	
	Yes	2.06*	(1.07-3.98)
<b>Kinesiofobia</b>	No	1	
	Yes	1.50	(0.95-2.67)
<b>Injury type</b>	Fracture	1	
	Luxation	0.99	(0.25-3.94)
	Distortion	1.61	(0.81-3.20)
	Contusion	4.24	(1.55-11.64)
	Muscle rupture	1.07	(0.21-5.12)

1 = reference group  
\* = category is significantly different with the reference group  
# = category is continuous in model

## DISCUSSION

- Several biomedical and psychosocial factors are associated with an increased risk of severe pain.
- An early focus on these patients is important to prevent delayed pain management and oligoanalgesia.

UNIVERSITY OF TWENTE.



Medisch Spectrum  $\Delta$  Twente



PROTACT

**More information.**  
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